

## **REMARKS**

### **Summary**

Claims 1, 2, 9, 10, 36 and 70 were pending and all of the claims were rejected in the present Office Action. The Applicant has carefully considered the references and the arguments set forth by the Examiner and respectfully traverses the rejections.

### **Comments on Examiner's Response to Arguments**

The Examiner states that the Applicant's arguments with respect to Claims 1, 2, 9, 10, 36 and 70 are moot in view of the new grounds for rejection. Yet, the Examiner states that the rejection of the claims over Wavre in view of Schaeffer is still valid and is repeated. The reason that the arguments regarding Schaeffer and Wavre would be moot would have been if the rejection had been withdrawn. However, as the rejection has been maintained by the Examiner, the Applicant respectfully traverses the rejection and reiterates and expands the arguments with respect thereto later in this response.

In Item 1 of the response, the Examiner cites a number of references which are said to teach various aspects of the claimed subject matter, but except in the case of Schaeffer and Field II, also discussed later, offers no evidence that there is any suggestion or motivation to combine the references. The Applicant notes that generalizations regarding the beneficial effects of combining references, without substantiation of such generalizations are indicative of hindsight based on the Applicant's own teachings.

The mere fact that the prior art could be modified as proposed by the Examiner is not sufficient to establish a *prima facie* case of obviousness. The Examiner must explain why the references would have suggested to one of ordinary skill in the art the desirability of the modification. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

The Examiner further asserts that, with respect to Wavre and Schaeffer, that the motivation to combine the references depends on suggestions that "the motor with less teeth requires less material and electricity to operate, hence less expensive", and similar qualitative arguments. (Office action Item 2).

Case law makes clear that there is a clear requirement for a showing of the teaching or motivation to combine references as part of the process of establishing a *prima facie* case of obviousness. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). See also *Graham*,

383 U.S. at 18, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. See, e.g., *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. See, e.g., *C.R. Bard*, 157 F.3d at 1352, 48 USPQ2d at 1232. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." E.g., *McElmurry v. Arkansas Power & Light Co.*, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact.").

The case law clearly establishes that a substantive reason to combine the references must be present and relied upon, else the finding of obviousness is flawed as being influenced by hindsight and the teachings of the present application.

### **Claim Rejections**

#### **35 U.S.C. § 103 (a)**

In a new rejection, Claims 1, 2, 9, 36 and 70 were rejected as being unpatentable over Schaeffer (US 4,315,171; "Schaeffer") in view of Field, II (US 4,244,696; "Field"). The Applicant respectfully traverses this rejection on the basis that the Examiner has not made out a *prima facie* case of obviousness.

In order to make out a *prima facie* case of obviousness, it is necessary that the combination of the references teach all of the elements and limitations of the claim. The Examiner asserts that "Schaeffer shows all of the limitations of the claimed invention in Fig. 22 [of Schaeffer] except for the different pitch. Field, II shows the rotor and stator pitches being different for the purpose of reducing cogging torque, thereby providing smooth operation." The Applicant respectfully traverses this assertion.

Schaeffer teaches that the motors "utilize a permanent magnet rotor having a multiplicity of equal pitch (equally spaced) permanent magnet poles of alternating polarity." (Schaeffer, Abstract). Field, II teaches that the rotor is composed of "two identical axially displaced rotor sections 18 and 20. .... Four cap shaped rotor pole shoes .... encapsulating the respective magnets at their axial ends form front and rear rotor segments .... the rotor segment carries 50 peripherally spaced teeth...." (Schaeffer, col 3, lines 9-33). When considering the "teeth" 36, on the front rotor segment 28, each of the teeth have the same magnetic direction in the front portion, and the opposite magnetic direction in the rear portion (Fig. 3, Schaeffer). So, they do not have the property of having alternating polarity in a circumferential direction and, at most, they are collectively a single magnetic pole, and are therefore not "a plurality of permanent magnetic poles circumferentially arranged", as recited in Claim 1. If one considers the rear rotor segment 38, which also has the same structure as the front rotor segment, there is an alternating sense of magnetic field from front to rear along the axis of rotation. Therefore the best that can be said about Field is that it teaches permanent magnetic poles AXIALLY arranged. The minor projections (teeth) on both the rotor and the stator 36 and 58, are not magnetic poles, as they do not possess the property of having alternate polarity, and the magnetic poles that are on the rotor are actually arranged in an axial direction. The Examiner has made no attempt to explain how the rotor with an axial pole arrangement would operate with a

stator intended for a circumferential pole arrangement. Such a configuration would not be appealing to a person skilled in the art, and the Applicant respectfully submits that such an arrangement would render the primary reference inoperative. An inoperative combination cannot be used to make out a *prima facie* case of obviousness. For at least this reason, Field does not overcome the deficiencies in Schaeffer, and not all of the elements and limitations of Claim 1 are taught or suggested.

Hence, a *prima facie* case of obviousness has not been made out. Indeed, there are further differences between the arrangement of Claim 1 and the references cited, but it suffices to show that there is at least one lack in the teachings of the references, or a lack of motivation to combine the same, in order that the claim be allowable.

Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schaeffer in view of Field and further in view of Tamae et al. (US 4,979,423; "Tamae"). The Applicant respectfully traverses the rejection on the same basis as set forth immediately above. Further, there is no suggestion that the motor purported to be taught by Schaeffer in view of Field would be considered suitable by a person skilled in the art to be useful in a disk apparatus. *Arguendo*, that a motor such as taught by Schaeffer in view of Field could be constructed and function properly, it would have the form factor of a typical motor. That is, it would have a long dimension along the axis of rotation. Since it is well known that it is desirable to construct a disk drive so that it has a small dimension in direction about which it rotates, the use of a motor as postulated by the Examiner would be contraindicated as it would have an undesirable form factor. For at least these reasons, the Applicant respectfully submits that the Examiner has not made out a *prima facie* case of obviousness with respect to Claim 10.

Claims 1, 2, 9, 10 and 70 were rejected under 35 U.S.C. §103 (a) as unpatentable over Schaeffer in view of Wavre (US 5,642,013; "Wavre"). The Applicant respectfully reasserts and amplifies on the traverse presented in the previous response.

With respect to the rejection of Claim 1 as unpatentable over Wavre in view of Schaeffer, the Examiner asserts that Wavre teaches all of the elements and limitations of the present Claim 1, except that "Wavre does not show the stator extending not more than 180 degrees with respect to a central angle of the rotor." Schaeffer is used in an attempt to remedy this deficiency in Wavre's teaching, and the Examiner asserts that the reason for the combination is "for the purpose of making better utility of laminations stock." The Applicant respectfully traverses this rejection on the basis that the combination suggested by the Examiner is taught away from by Wavre, as well on the basis of the case law cited in response to the Examiner's response.

Wavre is directed towards a linear or rotary synchronous motor in which the reluctant effect is to be minimized, and "the reduction of the reluctant effect will be all the greater when the number of slots is large." (Wavre, col. 5, lines 33-34), and "a large number of slots that enable[s] the reluctant effect to be reduced in a remarkable manner." (Id., col 5, lines 37-39). Wavre describes a slot 2 as the space between two stator teeth. Thus, a large number of slots require a large number of stator teeth. Conversely, Schaeffer, in the aspect relied upon by the Examiner, is directed towards reducing the angular extent of the stator, with a concomitant reduction in the number of stator teeth, which has the effect of reducing the benefits of a large number of stator teeth as taught by Wavre.

In *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994) the court stated:

[a] reference may be said to teach away when a person of ordinary skill, upon [examining] the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.

Thus, when the primary reference teaches away from a configuration, the Examiner may not use the teachings of the secondary reference to advocate an obviousness aspect of their combination as it will change the principle of operation of the motor taught by Wavre. Therefore, the Examiner has not made out a *prima facie* case of obviousness.

In another aspect, Schaeffer teaches that a ratio of  $b_n/t_n$  is critical to the performance of the motor, (Schaeffer, col 4, lines 13-40) where the ratio is that of the width of a stator pole to the space between stator poles. This clearly presumes that the spacing of the stator poles is regular over the entire length (for a linear motor) or angular space (of a rotary motor). Modifying the teachings of Schaeffer in accordance with those of Wavre would, according to Schaeffer (Id.), substantially degrade the expected performance of the motor. The Examiner has not made any attempt to explain how this problem can be overcome through further art references, and it must be concluded that the application of Wavre to Schaeffer has not been shown to make out a *prima facie* case of obviousness for this reason as well.

In the Response to Arguments, the Examiner concludes that “it would have been obvious to one having ordinary skill in the art to make the stator with 360 degrees (in the circular stator core, more teeth, more coils, more power, more expensive) or with less than 90 degrees (less power, less expensive)”

The Applicant further refers to the arguments made above in response to the Examiner's response and respectfully submits that the Examiner has not been able to identify specific grounds, depending rather on generalities which might be applied to any situation, for making the combination in the references cited, and therefore has not made out a *prima facie* case of obviousness.

For at least the reasons presented above, Claim 1 is allowable

With respect to the rejection of Claim 10 over Schaeffer in view of Wavre, the Examiner has not identified a teaching in either reference that suggests the use of the motor of Claim 1 in a disk apparatus. Hence, a *prima facie* case of obviousness has not been made out and Claim 10 is allowable. Furthermore, as Claim 10 incorporates the allowable subject matter of Claim 1, it is allowable.

Further, Claims 2, 9, 36 and 70 are claims dependent on an allowable independent claim and are allowable, without more.

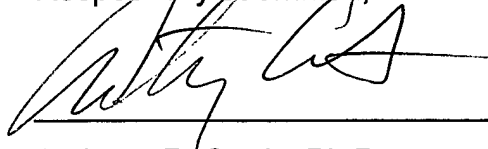
### **Conclusion**

Claims 1, 2, 9-10, 36, and 70 are pending. For at least the reasons given above, the Applicant respectfully submits that Claims are allowable.



The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite consideration of the application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Anthony P. Curtis', is written over a horizontal line.

Anthony P. Curtis, Ph.D.  
Registration No. 46,193  
Agent for Applicant

BRINKS HOFER GILSON & LIONE  
P.O. BOX 10395  
CHICAGO, ILLINOIS 60610  
(312) 321-4200